The JOURNAL of the AMERICAN DENTAL HYGIENISTS' ASSOCIATION

VOL. 17 OCTOBER, 1943 No. 4

Officers and Trustees of the

American Dental Hygienists' Association, Inc.

1941 - 1942 - 1943

President

MARY MIKALONIS - - - - - - Station Hospital, Selfridge Field, Mich.

President-Elect

ISABELL KENDRICK - - - - - - - - 21 Standish St., Springfield, Mass.

Vice-Presidents

MARGARET JEFFREYS - - - - - - - State Board of Health, Dover, Del.
SOPHIE GUREVICH - - - 3314 Mt. Pleasant St., N.W., Washington, D.C.
MABEL MCCARTHY - - - - - - 733 Iranistan Ave., Bridgeport, Conn.

Board of Trustees

DOROTHY O'BRIEN - - Army & Navy General Hospital, Hot Springs, Ark.
SARA HILL, 1944 - - - - - - - - State Dept. of Health, Jackson, Miss.
CHRISTINE SCHULZ, 1944 - 619 RoraBaugh Wily Bldg., Hutchinson, Kans.
PEARL BUFFUM, 1943 - - - - 901 Washington Ave., Miami Beach, Fla.
EVELYN MAAS, 1943 - - - - - - - 311 East Chicago Ave., Chicago, Ill.
FRANCES EKEY, 1943 - - - - - - - - - 121 Biddle St., Warren, Penn.
HELEN BAUKIN, 1942 - - - - Territorial Office Bldg., Honolulu, T.H.
CECELIA MADAY, 1942 - - - - - - - - P. O. Box 174, St. Peter, Minn.
MRS. FRANCES STOLL, 1942 - - 17 So. Kilburn Road, Garden City, N. Y.

Secretary

A. REBEKAH FISK - - - - - - - - - General Dispensary, U.S. Army
2 D-201 The Pentagon, Arlington, Va.

Treasurer

FRANCES SHOOK - - Station Hospital, Army Air Field, Eagle Pass, Texas

The JOURNAL

of the AMERICAN DENTAL HYGIENISTS' ASSOCIATION

Published Quarterly by the AMERICAN DENTAL HYGIENISTS' ASSOCIATION
Milford, Connecticut

Yearly subscriptions $1.00 in U.S.A. Foreign $1.25. Single Copy 25 cents.
Remittances should be sent to Business Manager.

EDITOR
MARY OWEN WILHELM, 1402 Pershing Blvd., Clinton, Iowa

Associate Editors:
MARGARET BAILEY, Dental School, Temple University, Philadelphia, Pa.
HELEN ADAMS, 1206 Peachtree Street, Atlanta, Georgia
MRS. HARRIET FITZGERALD WAHLANDER, Instructor, College of Dentistry
University of California

Advertising and Business Manager
MRS. HELEN BLAKE SMITH, P.O. Box 462, Milford, Conn.

Volume 17 OCTOBER, 1943 Number 4

CONTENTS

Calcium Metabolism and the Teeth 91
DONALD A. KERR, D.D.S.

Is Dental Hygiene as a Vocation to Become Static? 95
M. WEBSTER PRINCE, D.D.S.

Nutrition and Dental Health 99
MILDRED DANKEL, D.H.

Editorial 103

The Dental Hygienist in World War II 105
A. REBEKAH FISK, D.H.

Broadcast 107
MARGARET H. JEFFREYS, D.H.

Index of Oral Hygiene Literature 109
MARGARET H. JEFFREYS, D.H.

All communications and notices for publication must be in the hands of the Editor on or before the 1st of the month previous to publication. Communications concerning subscriptions should be sent to the Business Manager.

Entered as Second Class Matter January 19, 1935, at the Post Office at Bridgeport, Connecticut, under the Act of August 24, 1912.
Copyright 1943 by the American Dental Hygienists' Association, Incorporated, 1927.

MRS. ISABELL KENDRICK
President-Elect
American Dental Hygienists' Association

Calcium Metabolism and the Teeth

DONALD A. KERR, D.D.S.

University of Michigan School of Dentistry, Ann Arbor, Michigan

(Read before the 21st annual meeting of the Michigan Dental Hygienists' Association, at Detroit, April 19th.)

The subject of calcium metabolism is complex and of much greater magnitude than could be discussed in one short paper. In fact, if we considered in detail only calcium metabolism and its effects on dental structures, we would have a very lengthy paper.

For that reason I shall attempt to answer those questions concerning calcium metabolism, which we most frequently have to answer for our patients. These questions are:

1. Will the administration of calcium and phosphorus plus Vitamin C and D inhibit dental caries?
2. Is the saying "a tooth for every child" a true one?
3. Does the lack of calcium and phosphorus and Vitamin D in the diet of a pregnant woman cause poorly calcified caries susceptible teeth in the offspring?
4. Is caries due to acid mouth?

In order to answer these questions satisfactorily we must review briefly the formation and development of the tooth, because it is here that most of the answers are to be found.

The examination of the primitive oral cavity of a six-week embryo reveals the beginning of tooth formation. The stomodeum is lined by a thin layer of stratified squamous epithelium. Over the rudimentary alveolar area this epithelium grows into a fold which penetrates the underlying connective tissue and is called the dental lamina. A little later isolated areas of the dental lamina proliferate into small bud-like masses at ten different points in each jaw. These become small rounded masses and are called tooth buds. Each represents the anlage of a deciduous tooth. The enamel bud is a round hollow sphere of epithelium which becomes invaginated on its under side from pressure produced by its growing into the underlying connective tissue. By the time invagination is completed the tooth bud has begun to assume the form of the tooth it will form. Because of the pushing in of the under surface of the mass it now has two layers. The inner of these two layers will change into tall columnar cells. These are called ameloblasts because they have the ability to form enamel. The enamel formation continues in a rhythmic manner until it is completely formed. After its formation has ceased the ameloblasts then undergo involution, lose their specific character and appear identical with the cells from which they had their origin. The remains of the ameloblastic layer is called the reduced enamel epithelium and is found on the surface of the enamel.

When the tooth erupts into the oral cavity it is covered by the reduced enamel epithelium which remains on the surface until it is abraded away by mastication. Thus we see that the structure which formed the enamel is lost when the tooth enters the oral cavity. The loss of the formative organ after eruption thus isolates the enamel from the rest of the tissues. It loses the circulatory connection it had during formation. Because of the loss of circulatory contact, calcium and other substances needed for enamel formation cannot be supplied to it. This means that enamel cannot be formed or improve after eruption, and we must go through life with enamel as hard or as soft as it was when the teeth erupted.

With this information as a background, we can now consider the questions enumerated at the beginning.

Question No. 1

Will the administration of Calcium and Phosphorus and Vitamin C and D inhibit dental caries?

Mellanby[1] and others have advocated the administration of calcium and phosphorus plus Vitamin D for the control of dental caries in the belief that more calcium in the diet would make the teeth harder by producing higher degree of calcification. They believed that calcium and phosphorus would be added to the teeth if more of it was contained in the diet. Vitamin D which is necessary for calcium utilization was given to increase the amount of calcium metabolized.

From what we have just said above about the development of the tooth, additional calcification is impossible as the enamel is formed by cells which surround it until eruption and then are lost, leaving the enamel without any circulatory connection, and without some connection with the circulatory system there is no path by which the calcium can be transported to the enamel.

If the enamel is white and chalky and contains hypoplastic pits, it is an indication of some disturbance during formation. This type of enamel is poorly calcified, but it must remain as poorly formed enamel because the cells which formed it and would be necessary for its repair have been lost during eruption. Therefore, the individual must go through life with teeth as structurally imperfect as they were formed.

Furthermore, the production of good hard (i.e. highly calcified) teeth does not produce caries resistance. Caries of the enamel is a decalcification process in which acid produced by mouth bacteria dissolves the calcium of the enamel. Normal enamel is 97-100% inorganic calcium salts and is therefore very soluble in acid, and the addition of more calcium to the enamel will not reduce its solubility and therefore will not prevent or reduce the activity of caries.

Further, the blood level of calcium is carefully maintained at about 10 mg. per 100 c.c. by the activity of the parathyroid gland, and the body will not increase that level by the absorption of more calcium. We cannot raise the blood level of calcium by feeding large amounts in the diet. All the excess above the normal requirement is passed off as waste material. We can only insure an adequate supply by fortifying the diet, but it will not affect the degree of enamel calcification or the rate of caries.

Hanke[2] and others have reported the value of Vitamin C in reducing caries susceptibility. Vitamin C is of no significance in enamel formation as it affects only connective tissue structures. This has been proven by Wolbach[3] in relation to tooth formation. We also know it to be true from a study of the lesions of scurvy which is a Vitamin C deficiency. Because the enamel is an epithelial product, it is unaffected by Vitamin C. The reduction of caries activity reported after Vitamin C therapy is not due to the presence of Vitamin C, but to the change in diet accompanying its administration.

In summary of question number 1, we can say that the administration of calcium and phosphorus and Vitamin C and D has no inhibiting effect on dental caries.

Question No. 2

The old adage "a tooth for every child" has become so firmly fixed in tradition that it is rather generally accepted as a fact both by the laity and the professions. It is established on the premise that the calcium needs of the fetus place a demand on the mother for more calcium than can be supplied by the diet, and that to meet the increased demand calcium salts are withdrawn from the bones and teeth.

It is true that the storehouse for calcium in the body is the skeleton. When there is a lowered calcium intake so that the blood level drops, calcium is mobilized from the bones, and calcium mobilization, as we have mentioned above, is a function of the parathyroid gland. We cannot, however, place bones and teeth in the same category just because they are calcified structures. The bone is a living tissue containing cells which have the ability to build or destroy it, depending on the stimulus. It also has an elaborate circulation which supplies it with the blood necessary for its metabolism. In this respect it differs from the enamel which is an inert highly calcified inorganic substance which has no metabolic function. In the bone the cells necessary for its destruction are always present, while in the enamel as we saw in our review of tooth formation, the formative organ was lost and thus bodily connection was lost. The absence of tissue contact plays the same part in calcium removal as it did in calcium deposition. That is, some tissue connection is necessary to bring about decalcification and destruction.

I think that the most outstanding evidence of the effect of pregnancy on the teeth was produced by Fish[4] in England. He took a young female dog in good health and ex-

racted a tooth upon which he did quantitative chemical analysis for calcium and phosphorus. He also took radiographs of the teeth to be sure all were well formed and calcified. He then placed the dog on a calcium, Vitamin D deficient diet during which times he had several litters of pups. He then sacrificed the dog and took radiographs of the teeth to compare with those taken at the beginning. He also extracted the corresponding tooth from the opposite side of the mouth and submitted it to the same chemical tests. The results of radiograms and chemical tests indicated that there had been no change in the calcium content of the teeth, but on examination of the bones, he found all so poorly calcified that they could be cut with an ordinary penknife. Such an experiment proves beyond doubt that in very severe calcium deficiencies the bones act as a storehouse and are decalcified, while the teeth are not affected.

Another method for determining the effects of pregnancy on dental caries is to study a large group of pregnant women and a like number of non-pregnant women of the same age and social status. This was done by Mull, Bill and Kenney[5]. They examined 358 pregnant women before the third month of pregnancy and again during the period of lactation. They examined a similar group of women that had never been pregnant and found that there was no correlation between pregnancy and caries. They found that there was no rise in the average number of missing and carious teeth with the number of pregnancies, but there was a definite correlation, however, between age and caries.

Ziskin[6] made a similar study of 599 pregnant women and 205 controls and draws the following conclusion: Pregnancy cannot be given as a cause of dental caries, but there is an increase in the frequency of caries with an increase in age. The number of pregnancies does not increase the frequency of caries of the teeth but may decrease it slightly.

We can in summary then, answer this question by saying that pregnancy has no effect upon the teeth.

Question No. 3

Does the lack of calcium phosphorus and Vitamin D in the diet of a pregnant woman cause poorly calcified, caries susceptible teeth in the offspring?

It is fairly generally believed that the fetus which acts as a parasite will obtain all the calcium needed regardless of the quantity of calcium in the maternal diet, and that the necessary calcium will be obtained by the fetus at the expense of the bones of the mother. This is borne out by the experiments of Fish[4] referred to previously, in which several litters of pups were raised from a dog on calcium deficient diet. All of these pups had well developed fully calcified teeth, and there were no evidences of calcium deficiency in the pups.

Another report by Taylor & Day[7] indicates that calcium deficiency in the mother does not produce poorly calcified, caries susceptible teeth.

Taylor & Day made a study of 22 Punjab women suffering from osteomalacia, a condition in which there is softening and decalcification of the bones due to dietary deficiency and calcium loss. These women lived on a very poor diet consisting almost entirely of carbohydrate obtained from rice and chapatti, which is made from unmilled wheat ground to flour by themselves. Meat and vegetables were almost entirely lacking from the diet. Poor milk was occasionally included in the diet. These women had frequent pregnancies followed by long continued breast feeding. The combination of these two factors was responsible for the osteomalacia. These women were examined for evidence of dental caries and only 34 cavities were found in 565 teeth, or an average of 1.54 cavities per individual. In 8 cases no caries was found. This indicates that caries is not associated with calcium deficiency in the diet or with pregnancy. Seven children of these women were examined and all showed severe rickets, an evidence of calcium deficiency. Two children had hypoplastic teeth, and only 2 cavities were found in 144 teeth.

The well formed teeth and the absence of caries in these children from mothers with osteomalacia would indicate that calcium deficiency in the maternal diet during pregnancy does not result in poorly calcified, caries susceptible teeth. The fact that 2 children had evidence of hypoplasia, does indicate, that a markedly deficient diet, during the period of tooth formation, may cause disturbed formation of enamel, but does not change caries susceptibility.

Question No. 4

Is caries due to "acid mouth"?

Acid mouth is really a term describing a clinical condition noticed by the patient. The acidity of the mouth is measured by the hydrogenion concentration and is found to vary within a very narrow range, usually being slightly on the acid side. This slight variation may be caused by various changes in metabolism and is not significant when considered as a possible cause of caries.

The saliva is an amphoteric solution; that is, it is one which will neutralize either small amounts of acid or base. This property of saliva keeps the acidity of the mouth at almost a constant level.

Ziskin[8] studied mouth acidity during pregnancy and found a very slight increase, but not sufficient to be considered important. Mull, Bill and Kenney[5] in their studies of pregnant women did not find an increase in mouth acidity.

It was also found by Krasnow[9] in a study of the saliva of caries imune and caries susceptible individuals that the caries susceptible individual had a slightly higher acid content on the average, but that this difference was so small and the variation so great that it was unimportant. She also tested the neutralizing properties of the saliva in the same group and found that many of the caries susceptible had a higher alkalizing power than the caries imune. She concluded that oral acidity was of no importance in dental caries.

In conclusion we may say that the profession and laity have become over vitaminized and calcified by the high pressure advertising in popular magazines and journals. Calcium and phosphorus and Vitamin C and D are ineffective in the prevention and control of dental caries. An adequate amount of these substances in the maternal diet during pregnancy is necessary to insure general good health of the mother, but has no effect upon her teeth or the teeth of the fetus. An adequate amount of these substances is necessary in the diet of a child during the period of tooth development, to insure the perfect development of the teeth, but will not protect them against caries.

A good average well balanced diet will contain calcium and vitamins in sufficient quantities, all advertisements to the contrary.

REFERENCES

1. Mellanby, M. Diet and teeth. Pts. 2 and 3. London. H.M.S.O., 1929. 124, 142 p.
2. Hanke, M. T. Role of diet in the cause, prevention, and cure of dental disease. Jr. of Nut. 3:433. May, 1931.
3. Wolbach, S. B. and Howe, P. R. Vitamin A deficiency in the guinea pig. Arch. Pathology. 5:239. 1928.
4. Fish, E. W. An experimental investigation of enamel; dentin and pulp. London, J. Bale Sons, 1932, vii and 118 p.
5. Mull, J. W., Bill, A. H., and Kinney, F. M. Variations studies of serum calcium and phosphorus during pregnancy. Am. Jr. of Obst. & Gyn., 27:679. May, 1934.
6. Ziskin, D. E. Incidence of dental caries in pregnant women. Am. Jr. of Obst. & Gyn. 12:710, 1926.
7. Taylor, G. E. and Day, C. D. M. Osteomalacia and dental caries. Brit. Med. Jr., 2:221. Aug. 17, 1940.
8. Ziskins, D. E. and Hotelling, H. Effects of pregnancy, mouth acidity, and age on dental caries. J. Dent. Res. 16:507, Dec. 1937.
9. Krasnow, F.; Kroshen, M.; and Krejci, L. E. Study of blood and saliva in relation to immunity and susceptibility to dental caries. Jr. Dent. Res. 11:573, May, 1931.

Is Dental Hygiene As a Vocation To Become Static?

(Read before the 21st meeting of the Michigan Dental Hygienists' Association, April 19th, at Detroit, Michigan.)

Is Dental Hygiene, as a vocation to become static? Such a question addressed to ither Dental Hygienists or the dental profession at large immediately challenges interst, because wrapped up in its answer is contained at least a partial solution of the roblem of providing adequate dental service for the masses.

Almost continuously since the report of the Committee on the Cost of Medical Care, ppointed in 1927 by President Hoover, there has been continued agitation for some kind f a plan that would enable the public to avail itself more widely, of the benefits to be erived from dentistry.

Disagreements, mostly over policies and control, between the sponsors of such plans nd the health service professions, while mitigating against immediate adoption of any niversal health plan, are gradually subsiding, and there is now reason to believe that hese past differences will soon reach a working basis from which will finally come trial lans that may eventually mark the inception of a new era in the method of providing ealth service.

Not only are we engaged in a world wide war, revolutionary in nature, but we are, nd have been for some time past, engaged in a social revolution as well, so far reaching n its effects, that it touches every man, woman and child of this present generation, and will continue to for generations to come.

The term "Social Security" has almost become a household word which is glibly used to mean anything from fodder for the old cow, and old age assistance, to a sort of protection from all the fears and worries to which the human race is heir; a panacea for preventing future wars, unemployment, freedom from want, and a vacation with pay in one's old age.

Planning for the post-war period is already under way. The sweeping proposal drafted just recently by National Resources Planning Board as a post-war economic cushion, and known as the "American Beveridge Plan", was sent by the President to Congress for full consideration during this session. It is based upon the assumption that:

1. The need for public aid will be both large and persistent for some time to come.
2. The need for public aid is in large measure caused by serious maladjustments in the operation of our economy, and by physical or psychological defects, many of which can be remedied.
3. The social problem caused by economic insecurity is many-sided and requires for its solution a series of diversified programs. The report goes on to say that the broad objectives of public aid are to be the assurance of minimum security for all our people, wherever they may reside, and the maintenance of the social stability and values threatened when people lack jobs or income.

Under specific objectives, two items are noteworthy for our consideration:

1. Expansion of social services which are essential for the health, welfare and efficiency of the whole population. This expansion to be as wide and rapid as possible.
2. Assurance of basic minimum security through social insurance, as far as possible.

In explanation the report says further that: "Public social services essential to the health, education and welfare of the population should be available throughout the country, especially in areas which are disadvantaged in respect to income and taxable wealth.

In most communities marked expansion of present services will be required in order to achieve these objectives. The planning and administration of public social services should be lodged in appropriate agencies of government responsibility, for their development should be shared by local, state and federal authorities. The administration should be in the hands of qualified full-time personnel, selected on the basis of merit."

Speaking on the subject of medical care, the report says, "It is essential that public provision be made for meeting the needs of our people, for more adequate medical care. Toward this end the Federal Government should stimulate, assist, or undertake constructive action to provide such care for the millions of our people whose need cannot be fully met from their own resources. Such a program should include adequate provision for promoting the health of mothers and children.

State and local child welfare services for the prevention of child neglect and delinquency, and for promoting adequate care of children requiring special attention should be expanded with the assistance of the Federal Government so as to be everywhere available."

With such recommendations emanating from within high government circles, it is quite reasonable to expect at least by the post-war period that there will be an attempt by the Federal Government to establish some plan of providing so-called adequate health service for all, of which dentistry is a part.

What then is adequate health service? Much time has been devoted in the effort to determine what this would mean in terms of dentistry, but no definition has been formulated as yet that could be universally accepted. However, I believe it would be safe to say that no matter what the definition ultimately, it must be sufficiently comprehensive to provide a state of dental health, capable of maintaining the highest possible degree function and body activity.

The discovery by selective service that the highest percentage of all rejections were due to mouth disease, largely due to defective teeth, has opened the eyes of the public to the need for dental treatment, and the question is being asked, "What is to be done to correct this situation, and prevent its ever happening again?"

All thinkers are in accord with the need for immediate steps that should be taken to safeguard the future dental health of the nation, but how far to go in meeting the problem is still an open question.

The enormous cost necessary to rehabilitate those that are already dental cripples from carelessness and neglect, the time required to complete such an undertaking, the facilities and man power available to do the job, are all factors in determining what the probable pattern of health service will be.

Because the dental profession of Canada has recently had this very problem tossed into its lap by the government, in a proposal for compulsory health insurance, and because Canada is only about one twelfth the population of the United States, let us see what this would mean for Canada, and from that we can visualize our own problem.

Canada has roughly a population of 11½ million people, and 4000 dentists to serve them. That is 2875 persons per dentist. Accepting the figures of the committee on the cost of medical care, that 20% of the people are receiving adequate dental care, and deducting that number from the total of 2875 per dentist, leaves 2300 patients that each dentist would be expected to add to present practice.

Dental economists state that a dentist should not put in over 2000 hours a year in his office, so that leaves less than an hour once a year for each dentist to devote to each of these 2875 patients needing attention.

One familiar with the time required to perform dental operations can readily see the impossibility and hopelessness of attempting to formulate a plan that would not provide even a semblance of adequate service for such a large number of patients.

Canadian dentists, recognizing the lack of available dental manpower for such a plan, have pointed out to the government the alternative of starting with the pre-school child, and gradually increasing the scope of the program as operative personnel is built up. According to their figures, there are 3½ million children under 16 years of age in Canada. To care for this group alone would mean 875 child patients per dentist, and with the supposition that each child would require at least two hours of chair time, twice a year, one can readily see that the number of dentists necessary for even a modest program, would have to be nearly double. Educational facilities would also have to be materially increased, so on the whole, the problem is rather complicated.

By this time you are no doubt wondering what all this has to do with the dental hygienist.

Many dentists who recognize the true value of a hygienist feel that her latent possibilities in the field of preventive dental practice have been overlooked by the great

ajority of the dental profession, and that the dental profession and the public alike, ave suffered as a consequence.

Considering the time that has elapsed since graduation of the first class in Dental ygiene, in 1913, progress has been slow. There are still 16 states that do not admit ygienists to practice. Only three states have opened their doors since 1930, and none nce 1937.

There are but 13 of our dental schools that offer courses in Dental Hygiene; three firmaries, and one state teacher's college; a total of 17 courses open to prospective udents.

While I do not have the exact figures, there is reason to believe that the annual mber of admissions to practice do not exceed the number that retire annually. Such assumption is partly based on the total number of registered hygienists which was 29 ten years ago, with practically little or no increase to date, and partially on the embership of the American Dental Hygienists' Association, which is about 1700.

Accurate figures of hygienist enrollment in schools for the past 10 or 20 years are so difficult to obtain, but it is evident from the figures of the Council on Dental Edu- ation that the present trend of registration for hygienists is downward.

In 1941 there were 327 dental hygienists registered in the various schools; in 1942, 40, a loss of 87 in one year. From these figures one might conclude that dental hygiene s a vocation, has reached its peak, and the question that naturally arises is, "What of e future of dental hygiene as a vocation. Is it to go forward, backward, or remain atic?" By static I mean just holding its own, with the annual number of registrations r the course to be about the same year after year, probably not more than enough to ver the loss by retirement.

The answer to this question, like many similar questions, is best answered by care- ully watching social and political trends. There is little question among those watching hese trends but what the post-war period will see changes attempted in the manner of providing health service for the masses.

It has been repeatedly stated by social planners that present methods of providing dental service are economically wasteful and inadequate. Many recommendations and plans have been proposed for streamlining dental practice, some of which are extremely revolutionary, and as I stated previously, have thus far been held in abeyance, largely due to disagreements in policies, and methods.

The most recent example of such a plan is the so-called "Hyser Plan".

This plan is based upon the supposition that highly skilled operators working with patients on a production line basis can accomplish more and better work than is possible under present methods, at greatly reduced costs.

In commentating upon the plan the author says, "Plans for lowering medical and dental costs will always attract the opposition of those whose first fear is for the income of the individual practitioner, but certainly all practitioners whose dominant interest is in *the science* rather than the *business* of dentistry and who understand the possibilities of preventive dentistry for the 80% of the population that now has none, will welcome this and any other plan, that attempts to deal realistically and scientifically with the vast problem before us both in the armed forces and in the civilian communities where dentists are now too few."

I like to think that I am one of the practitioners who can see and understand the possibilities of preventive dentistry for the 80% now without any, and while I would have to differ from the method of providing this service on an assembly line basis, yet I do think there is something to be said on the side of increased efficiency for the great majority of dental offices.

Present practice has been developed around the individual efforts of the dentist without much thought given to conservation of time.

Such development has been in keeping with the tempo of the times, but times are changing.

The dental profession can no more hope to meet the challenge of today with horse and buggy methods, than the horse and buggy can meet the challenge of present demands for travel.

The dental profession is now faced with the problem of planning for and increasing demand for dental service that will possibly grow to mountainous proportions. Not double

the present demand, nor triple our present capacity, but perhaps four times more than we have ever produced.

The present per capita of dentists to population in the United States is roughly 1875 people to each dentist. If all of these 1875 people are given attention, the extent of that attention would amount to about the equivalent of about one good prophylaxis and examination per person each year.

Quite obviously such limited service as this would be wholly inadequate, so the solution must be found in other possibilities.

Either the number of dentists must be increased four times, or the present number of dentists geared up to produce 4 times more than they now do.

To educate four times the present number of dentists would require a complete reorganization of our entire educational program, for we neither have the schools or teaching personnel to make it possible, nor reason to believe 4 times the present number of students would select dentistry for their life career.

This leaves the other alternative of increasing present production. I am sure everyone will agree that even though every dentist was willing to double his hours and double his present efforts, the dental profession would still fall far short of producing the amount of dental service necessary to meet anticipated requirements.

By this time I am sure your thinking and mine are running in the same channel, namely; that probably for the present at least, the efforts of the dental profession would be better directed toward a preventive program for children of school age and the training of enough hygienists to do all prophylactic work including examination for cavities thereby releasing the dentist for necessary restorative work.

This would mean not only doubling our present graduation classes, but actually increasing the number graduated in dental hygiene eight times!

I arrive at this figure from the number of dentists now being graduated annually. Last year there was a total of 1946 graduated from all schools of dentistry and in order to even begin such a program, there should be at least as many hygienists as dentists.

But you say how could this be done? Our schools are not equipped to handle such large classes in dental hygiene. We would have to build new schools. Is not the logical answer increasing the number of the schools offering courses in dental hygiene, and also increasing the number of students in the schools already teaching dental hygiene?

There are 26 dental schools at present which do not offer a course in dental hygiene. If each of these schools were to accept 50 girls annually, the other 17 institutions might be able to increase present enrollments an average of 38 annually, which translated in terms of numbers for the University of Michigan would mean a class of 54.

As a matter of fact, many of our schools, including Ann Arbor are capable of handling much larger classes than this, which would make up for some of the smaller colleges that might have difficulty in training their proportionate share.

One of the reasons for failure of the profession to have better mothered its child of dental hygiene, is that many men in the profession honestly do not know of the possibilities and capabilities of a hygienist. They are the ones who are satisfied to continue living in the past. But the time is past when this type can retard the onward roll of the profession.

Social service leaders recognize the need of a balanced personnel comprising both men and women, as economically sound and capable for meeting the newer concept of dental practice.

In the post-war period women will not be overlooked, for every avenue of activity capable of absorbing the great numbers of both women and men released from the war effort, is to be explored. Trained women hygienists are just as essential to the continued growth of the dental profession as medical nurses are to the medical profession.

No hygienist and no dentist interested in the future welfare of the profession wants to see anything happen to affect the forward march of the profession.

Hygienists have a duty to perform as well as has the dentist. That duty is to encourage and interest other girls to turn to dental hygiene as a vocation.

Your attitude toward your work, and your attitude toward the profession and its future, has much to do with your ability to help in this forward movement.

Ask yourself this question: "How many girls have I influenced to decide on dental hygiene as their vocation, since my graduation?" If the answer is zero, examine yourself

for the reason why. Think it over, and see if you want to continue to be among those who feel they owe their profession and its future nothing.

My answer to the question, "Is dental hygiene as a vocation to remain static?", is emphatically, "No". It must go forward at a much faster rate than it has at any time since its inception, and become the right arm of the dental profession, a place that it should, and must rightfully occupy, if ever the problem of providing adequate health service to the masses is realized.

M. WEBSTER PRINCE, D.D.S.
7634 Dexter Blvd.
Detroit, Michigan

Nutrition and Dental Health

By MILDRED DANKEL, Class of '43
School of Dental Hygiene, Temple University

Today, in thinking of the development of the individual, psychologists and sociologists stress primarily these two factors: heredity and environment. Members of the medical and dental professions, nutritionists, and public health workers have injected another more specific and significant factor by showing the importance of our internal environment. Out of this environment grows the healthful functioning of the parts of the body and the body as a whole.

Today, in a war-torn and worried world, it is important that we develop individuals capable of withstanding the strains of war while in actual combat on the battlefield, or in war industries producing war materials, or in the homes where fear, anxiety, and worry have taken a hold. Our failure in this matter in the past years was brought to our attention by the many rejections after examinations for the armed services. Our job now is to forget what was not done in the past showing itself in the present and fortify ourselves for the future.

Diet is one of the most important of the contributing factors toward the building of a good internal environment. There is quite a lot of truth in the statement that man is largely a product of what he eats and the question, "Do you live to eat or eat to live?" should arouse some thinking for many people. The realization of the relation of diet to disease has been only recently brought to light to the average person. That we, the richest country on earth capable of providing its citizens with food, should suffer in such great amounts from diseases whose etiology is found in malnutrition seems illogical. The nutritional level of the American people can be improved. First of all we must continue to educate our people and wipe out ignorance and at the same time remove the resistance and influence of commercial interests. We have at our command many resources and much scientific knowledge which must be put to work. There must be better training in nutrition with much experience in the recognition of nutritional diseases for the physicians, dentists, public school teachers, public health nurses, nutritionists, social workers, and dental hygienists so that they are better able in their contacts with large groups of population to educate and provide expert advice for their specific problems and questions.

We, as dental hygienists, attack the problem of general health through that of oral health. It is our object to inculcate healthful habits of daily living which will maintain in an individual's mouth a condition of health and cleanliness. We are concerned with nutrition and prophylaxis as playing important parts in preventive dentistry and the health of the body.

Dental and oral health plays a distinctive role in maintaining general health. The Mayo brothers have said that 80% of the diseases of the body have their beginning in the mouth. Nutritionists have stated that a large percentage of diseases are caused from inadequate diets and malnutrition. Since oral manifestations of nutritional deficiencies are found in the mouth much before there are other diagnostic symptoms, it is important for the dentist and the dental hygienist to be aware of any changes in the surrounding

tissue, bone, the state or character of salivary secretions, and all symptoms of a changed body metabolism.

The role of nutrition in dental health has finally been given the emphasis and stress due. There has been and is much research and experimentation carried on and much evidence derived which has proved its importance in dental health. Dr. Weston A. Price in his book "Nutrition and Physical Degeneration" reports his investigations among primitive racial stocks including both isolated and modernized groups of the effect of their specific diets on their teeth. The reward of obeying nature's laws of nutrition are well-illustrated by the few dental caries, breadth of dental arches and the finely proportioned features whereas where commercial and modern foods have been adopted, dental caries were active together with marked changes in the facial and dental arch forms resulting in crowded and irregular teeth.

Among those theories advanced concerning the effect of diet on teeth, the following have been given much credit:

1. Agnew—No unanimity of opinion as to exact cause of dental disease. Diet is of great importance in the prevention of caries. Phosphorus and vitamin D primary agents in the prevention of caries.
2. Beck and Weber—Calcium and vitamin D deficiencies are causes of dental diseases.
3. Boyd and Drain—Tooth integrity may depend on the adequacy in the diet of all essential factors.
4. Breese—Sweets in the diet cause caries.
5. Bunting—Caries is caused by carbohydrate fermentation with the aid of bacillus acidophilus and a yeast present in the mouths of susceptible individuals.
6. Hanke—Faulty nutrition; a lack of vitamins especially vitamin C responsible for caries and periodontal disease.
7. Hawkins—Adequate diet well fortified with fresh fruits and green vegetables is essential; diets low in sugar and cereals, increase the alkali content of saliva and arrest caries.
8. Howe—Vitamin C most important.
9. Jones and Co-workers—Defective dentin formation is associated with abnormalities in bone formation, but hypoplasia of enamel is related to insufficient base-forming elements in the diet.
10. Koehne and Morell—Agree with Bunting as to the correlation between increase in bacillus acidophilus of the saliva, high sugar intake and high incidence of caries.
11. Lennox—Phosphorus deficiency causes dental malformation and decay.
12. Leonard—Avitaminosis, constipation, a lack of calcium and overeating responsible for periodontal disease.
13. McCallum—Too much meat, bread, and potatoes and not enough milk and leafy vegetables causes poor dentition.
14. Mellanby—A lack of vitamins A and D in the diet of expectant mothers and also in diets throughout life causes dental defects.
15. W. D. Miller—There is a direct adverse action on the tooth structure from lactic acid produced by bacterial fermentation of carbohydrates with subsequent decay.
16. Price—Controls dental caries by increasing fat soluble vitamins and mineral intake.
17. Simonton—Faulty nutrition, avitaminosis, and a disturbance of the acid-base balance are responsible for dental disease.*

From the results of many experiments, one may conclude that the teeth, like the rest of the skeletal structure, depend upon an adequate diet for their development and maintenance in health. Because of the fact that the character of the teeth are largely determined before birth and in infancy before any teeth erupt, the close connection between teeth and diet is not realized.

Tooth development begins at the fortieth day of intra-uterine life. By birth the entire first set are inside the jaw with their crowns almost completely calcified. For normal development, the mother must supply an adequate amount of calcium and phosphorus and so that the minerals may be utilized, liberal amounts of vitamins A, C, D.

*Miller, S. C., *Textbook of Periodontia.*

The statement, "For every baby, a tooth" is no longer held tenable by obstetricians who refute the old belief that the fetus takes calcium from the tooth of the mother if the supply is insufficient and thus the tooth through decay is lost. Once the tooth is formed, calcium cannot migrate from the teeth. The calcium content in the dentine which is organic is only slightly increased from the intake throughout life. The calcium and phosphorus intake is most important during prenatal and early infancy life when the permanent teeth are being formed. An inadequate diet during pregnancy is one of the main factors in dental caries in childhood.

Once a child has its second set of teeth, it is our main concern to try to preserve them. There are different theories on the causation of dental caries:

1. *Acid reaction of the saliva.* Here we may discuss the acid-base balance. Protein foods such as meats, fish and eggs, cereals, etc., when oxidized produce acid end products. A high acid content diet is evidenced by unhealthy and undertoned gingival tissue, bleeding easily and slow to heal when injured. Alkaline end products result from fruits, vegetables and milk. It is important that the diet be 60% alkaline and 40% acid. A high acid reaction of the saliva may attack the enamel.
2. *Bacterial flora of the mouth.* The bacillus acidophilus odontolyticus has been stated as being the probable causative organism in dental caries. An acid environment is favorable to the organisms' growth. In turn it is known that these organisms are able to catalyze the various steps in carbohydrate fermentation wherein acid is produced which decalcifies the enamel.
3. *Deficient nutrition.* Much argument continues as to the cause of dental caries; however, there is much proof to believe that the initial lesions are caused by acid formation. Diet influences the conditions under which these acids are formed and promotes from within the formation of a strong and resistant tooth structure. There is no law that diet will wipe out caries but no one can hope to prevent or retard dental caries without a good diet. Besides inadequate consumption, deficient nutrition may result from improper absorption, improper retention, influence of endocrine glands—especially that of the parathyroids, excessive needs, and impairment of utilization in the tissues.

Through much research and experimentation, specific nutritional factors have been found which have a specific function in dental health.

1. Fluorine. Fluorine in the enamel aids in making it stronger and more resistant to caries whereas an excess causes mottling and brittleness of the enamel.
2. Calcium and phosphorus. Both necessary for the formation of the teeth and effects the structure.
3. Magnesium. Magnesium effects epithelial tissue which in turn effects enamel formation and dentin calcification.
4. Vitamin A. This vitamin is important when the tooth forms in the proper functioning of the enamel organ. It effects epithelial structures particularly.
5. Vitamin B. Riboflavin (B2) deficiency may show fissures and cracks at corners of mouth; thiamin (B1), sloughlike glossitis; nicotinic acid (B6), Vincent's Stomatitis.
6. Vitamin C. This vitamin is important in the formation of dentin, development of tooth structure, proper tooth growth, and the health of the gums. Lack of it results in interrupted activity of the osteoblasts, odontoblasts, and ameloblasts; systemic type of pyorrhea; resorption of intercellular substance resulting in endothelial weakness and therefore bleeding.
7. Vitamin D. It is the vitamin which influences and increases efficiency in the utilization of Ca and P by improving their absorption by the intestine.

McCollum advises a high fat intake and a low carbohydrate intake as reducing the incidence of caries in the formation of a protective coat from the acids of fermentation of carbohydrates.*

Deficiency disorders may be taken care of by an increase in the use of whole grain

*The Philosophy of Nutrition as Related to Dental Disorders by M. L. Drazin, J. of A. D. A., 29, p. 189.

or enriched cereals, dairy products, green and yellow vegetables and fruits. A daily intake of the following should prevent nutritional deficiency diseases:

Milk—½ to 1 quart
Egg—1 to 2
Meat, fowl, or fish—1 serving
Butter or enriched oleomargarine—1 tablespoon
Vegetable—3 servings including 1 green leafy vegetable
Fruit—2 servings including a raw fruit preferably of the citrus varieties

A good amount of roughage in the diet aids in the natural cleaning of the teeth and in the stimulation of the gums. In my reading, I found an interesting grouping of foods in relation to the teeth:**

Tooth-Building	*Tooth-Protecting*	*Tooth-Cleaning*
Milk	Milk	Raw cabbage, carrots
Cod liver oil	Cream	Apples, and other fruits
Whole grain cereals	Butter	Whole grain cereals
Fruits	Orange juice	Celery
Vegetables	Tomato juice	Lean meats
Eggs	Grapefruits	Toast
Butter	Lemons	Coarse grain bread
Spinach		

To be eligible for service in the United States Army, a man must have a minimum of six masticating teeth and six incisor teeth all of which must be so opposed as to serve the purposes of incision and mastication. Because of teeth, one man out of every eight has been unacceptable for army service. This is a serious situation.

There is a definite relationship between nutrition and dental health. Scientific research and experimentation has impressed us with the importance of nutrition in the prevention and treatment of dental disease. Being impressed is not enough, we must act. Tooth decay is not normal. Nutrition holds solutions for dental health problems.

**A Unit in Mouth Health Teaching for Home Economics by P. Newman, J. of A. D. H. A., 13, p. 8.

REFERENCES

Books

Miller, S. C., "Textbook of Periodontia", 1938.
Price, W. A., "Nutrition and Physical Degeneration", 1940.
Rose, M. S., "The Foundations of Nutrition", 1938.

Periodicals

Becks, H. and Furuta, W. J., "Effects of Magnesium Deficient Diets on Oral and Dental Tissues", J. of A. D. A., 28, 1083 and 1088.
Drazin, M. L., "The Philosophy of Nutrition as Related to Dental Disorders", J. of A. D. A., 29, 187-195.
Elliott, M. D., "The Need for a Knowledge of Nutrition in Dentistry", J. of A .D. H. A., 13, 3-6.
Fosdick, L. S. and Starke, A. C., "Carbohydrate Degradation by Mouth Organisms", J. of A. D. A., 28, 234-240.
Haden, Russell, "Specific Nutritional Deficiency Disease", J. of A. D. A., 28, 726-731.
Harris, R. S., "Role of Nutrition in Dental and Oral Health", J. of A. D. A., 28, 424-430.
Howe, P. R., Bessey, O. A., and White, R. L., "Practical Nutritional Suggestions for Dentists", J. of A. D. A., 28, 1089-1098.
James, J. D., "Dental Caries in Pregnancy", J. of A. D. A., 28, 1857-1862.
Miller, F. D., "Nutrition for Defense", Oral Hygiene, 31, 891-894.
Newman, P., "A Unit in Mouth Health Teaching for Home Economics", J. of A. D. H. A., 13, 6-12.

President: MARY MIKALONIS, Station Hospital, Selfridge Field, Michigan
Treasurer: FRANCES SHOOK, Station Hospital, Army Air Field, Eagle Pass, Texas
Secretary: A. REBEKAH FISK, General Dispensary, U.S. Army, 2 D-201 The Pentagon Arlington, Va.
Editor: MARY OWEN WILHELM, 1402 Pershing Blvd., Clinton, Iowa
Neither the editors nor the publishers of THE JOURNAL are in any way responsible for the statements and opinions expressed in any article.

Editorial

Throughout the Country

The experiences that come to a dental hygienist in a Government Hospital are varied and interesting. Those of us who have had years of experience are used to being a novelty to many of our patients. Even those in school work will testify that the experience of a dental appointment to a school child is usually welcomed as a diversion from routine, and that the association with the children is pleasant, in contrast to the dreary repetition of some of the school work.

The first reaction from the army boys is "Oh, a *lady* dentist! Are *you* gonna work on me?" Some are amused, some distrustful, and some go so far as to ask whether you've been trained to do this work, or just "picked it up". So here is the first opportunity to tell the world about our profession, to make clear what we are trained to do, and to inculcate some faith in our ability.

But the proof of the pudding isn't in the advertising, so we proceed to give the usual prophylaxis amid a barrage of questions about every step. They seem interested in the instruments, the type of dentifrice, the method of polishing, and are amazed at the amount of calculus that they hadn't known existed. Most of them have never been given a thorough prophylaxis, and some have never been in a dental chair before.

We receive many lavish compliments on the thoroughness of the prophylaxis, and accept them as a compliment to our profession. After all, we are definitely specialists, and if we have a small job to do, the least we can do is to do that well. Our secret wish is that we could put up a sign as they do in the Grab-a-bite restaurants, "If you're satisfied, tell others, if you're not satisfied, tell us."

Throughout the country army camps have dental hygienists winning enthusiastic supporters for our profession. Let us make the most of this opportunity to educate the public to the facts about the dental hygiene profession.

Miss Ida Mae Stilley, a Pittsburgh member, has obtained permission from "Oral Hygiene" and from the writer of the letter which follows, to prove we do have champions, and in particular one from the field of education. Dr. Smith's letter has already appeared in the August issue of "Oral Hygiene", but bears repetition.

Dr. E. J. Ryan 708 Church St., Evanston, Ill. May 28, 1943
Editor "Oral Hygiene"
Dear Sir:

In the May issue of "Oral Hygiene" an article appears entitled "Are Dental Hygienists a Menace?", written by Charles L. Hatcher, D.D.S. Evidently, as editor, you do not

agree with Dr. Hatcher's opinion since you have printed at the beginning of the same article the following sub-title: "What One Dentist Thinks About Dental Hygienists". I am of the opinion that Dr. Hatcher has not had sufficient experience with the work of dental hygienists or possibly, in the course of his practice, he has been embittered by an unprofessional action on the part of a dental hygienist.

In my position, as Director of School Health Service in the city of Pittsburgh, I have developed just the opposite opinion of dental hygienists to the one expressed by Dr. Hatcher.

In the health program of the Pittsburgh Public Schools we have forty-six doctors, thirty-seven nurses, fourteen dental clinics with a dentist and dental assistant in each clinic and four dental hygienists. Our dental clinics for under-privileged children have been in operation for almost twenty-five years and I am sorry to say that we were not getting any place with the oral hygiene situation by doing corrective dentistry alone. Dentists should keep in mind the fact that the dental hygienist bears almost the same relation to the dentist as a nurse bears to the physician. Her duties and field of work are necessarily limited and should be considered as primarily educational. The examination and diagnosis of dental defects among children is intended to give them a foundation on which they build their educational program.

I have found from experience that dental hygienists: (1) reduce immeasureably the amount of dental work required in later years; (2) train children to go to their private dentists; (3) save the six year molars which are the most important teeth in the child's mouth; (4) prevent much unnecessary suffering and illness in later years of life; (5) appreciably reduce the number of permanent teeth lost because of neglect.

Any dental program to be successful must include a preventive program as well as a corrective program. It is our aim to have dental work performed by private dentists and I have found that it is only possible to accomplish this objective by employing dental health educators. When we are able to create the desire among children for dental correction we are able to get results. Thus far we have used dental hygienists in the first, second and third grades. These grades have children in the impressionable age and we are passing them out of the third grade with a thorough knowledge of proper diet, a complete understanding of what we mean by good oral hygiene, also how to use a tooth brush and an almost unbelievable improvement in the amount of corrective dental work. The first ten schools in this city examined by the dental hygienists showed that more than 90% of our children had bad oral hygiene. In one school we had two rooms in which we found forty-three abscessed teeth. This condition has been sufficiently improved to convince me that the dental health problem among school children can be solved. Judging from our experience thus far, I am convinced that in a period of eight or ten years, somewhere between 75% and 100% of our children will leave the third grade, not only with the above mentioned knowledge, but with all dental corrections completed.

The author of the aforementioned article asked the following question: "Will the public, first, be benefited by the licensure of dental hygienists?" He answers this question with the word "No". I will answer the same question with an emphatic "Yes". There has never been a profession developed that was more needed or that has proven more valuable in the education of children than the profession of Dental Hygienist. We must keep in mind that doctors, dentists and nurses are more or less technical experts while the dental hygienists are certificated teachers specialized in dental health education. The only technical work that they do is examine teeth and in some districts provide prophylactic treatments. The provision of prophylactic treatment is, to my mind, unimportant but the examination of teeth, the dissemination of knowledge and the creation of desire on the part of children for dental service is extremely important. I know of communities where ten years ago 90% of the children had bad oral hygiene, while today less than 9% have bad oral hygiene and all the dental work was performed by private dentists.

When you consider that approximately 21% of the first two million draftees did not have twelve remaining permanent teeth with three opposing pairs, it was high time that some method of educating the rising generation be developed. I give full credit to the dental profession for their activity in developing the profession of dental hygienists. Their work has immeasureably benefited the public and also benefits the dental profession. The time will arrive when no school system will operate without a dental health educator. Both physicians and dentists are gradually accepting the idea that bad oral

ygiene can or might be the underlying cause of serious diseases such as rheumatism, art disease, stomach ulcers, gall bladder disease and, if cancer cells are present, may en be the exciting cause of cancer of the mouth, throat and other parts of the alimen- ry tract. As a matter of fact, probably better than 90% of all disease enters the body way of the nose and mouth. Therefore, it is certainly time that we do something out the terrible oral hygiene situation that exists among the school children of our untry. Judging from my experience in school health work, I know that the dental ygienist is in the best position of all professional individuals to bring about better dental alth among the thirty million school children in this country. The greatest bottle-neck the Pittsburgh dental program is lack of private dentists who are willing to accept ildren for complete and thorough dentistry.

Dr. Hatcher advocates more education for dental hygienists. If we are going to pro- de more education for anybody in preventive health service, it should be provided for th the dental and medical professions. Both professions are still individualistic in eir attitude and fail to visualize their great opportunity for improvement in general alth. Dental hygienists do not and will not assume any of the prerogatives of dentists t they do enhance the opportunity of the dental profession to be of real service in ublic health.

Yours very truly,
L. M. SMITH, M.D.
Director of
School Health Service
Pittsburgh, Pa.

The Dental Hygienist In World War II

By A. REBEKAH FISK

Dental Hygiene today as seen through the medium of the mail box of our national organization presents at times some grave problems.

First and foremost in the minds of most of us is the question of how we can best apply our training to the War Effort and many requests are received for information with regard to the dental hygienist in the Women's Army Auxiliary Corps (WAAC) and the Women's Accepted Voluntary Emergency Service (WAVES).

The WAAC as now organized as an auxiliary to the Army of the United States is limited in its application to just certain branches of the Army and the Medical Department, of which the Dental Division is a part, is not included in their field. However, there is a bill pending in Congress, which, if passed, will make the WAAC a part of the Army of the United States and then their application might be more general. Personally, I do not feel that under the present organization of the Medical Department of the Army that the WAAC is the place for the dental hygienist. Because of our close association with nurses, physiotherapists and dietitians at general and station hospitals a satisfactory arrangement would be for the dental hygienist to be so classified as to receive the same rights and privileges as are now afforded those other three groups, unless under some plan of reorganization they too might be under the WAAC.

Most of the difficulty that dental hygienists are having now at various Army stations is due to the discrimination with regard to living quarters, mess privileges and social activities against a civilian. Last October when the bill in Congress to commission the dietitians and physical therapists went into hearing before the House Military Affairs Committee the American Dental Hygienists' Association made a desperate effort to have it amended to include dental hygienists. Our efforts failed as we did not have the support of the Surgeon General, although the Chief of the Dental Corps recommended it.

The primary purpose of this legislation was to simplify administrative procedure in the transfer of certain Medical Department units to theatres of operation through militarization of all personnel constituting the unit. Dietitians, physical therapists and

dental hygienists were originally employed under Civil Service and as such could not be ordered to foreign duty without consent. In many instances those assigned to the unit would decline to leave too late to obtain substitutes and the unit would be deprived of technicians of their training. In a status comparable to nurses they were subject to change of station and continued service without their consent. As a result of the intervention of the American Dental Hygienists' Association the original bill was modified to provide for the appointment or enrollment in the Medical Department of technical and professional female personnel in categories required for duty outside the continental United States by executive order.

There has been no demand for female dental hygienists in Medical Department installations assigned to theatres of operation, and consequently it is not anticipated that the above cited provisions of Public Law 828 will be invoked at this time.

Last fall some effort was made by the Navy to recruit dental hygienists under the WAVES as second class pharmacist mates. The procurement objective was set for 600 and since they were not available the Navy is now beginning to train their own dental hygienists in general hospitals. The course is short and inadequate and we must be watchful to keep our State Boards from granting them licenses to practice, placing them on equal footing with the graduate registered dental hygienist.

Many letters have been received lately from various parts of the country stating that dental assistants working for the Army were being trained by the Army to scale and polish teeth and that after this training they were being classified as dental hygienists. On May 7, 1943, Miss Sophie Gurevich, Chairman, War Service Committee, A.D.-H.A., appeared before the War Service Committee of the A.D.A. and protested the action of the Army and Navy to train their own dental hygienists and requested them to sponsor an adequate training program for dental hygienists under government subsidy. As a result, the following motion was approved by the War Service Committee, A.D.A.: "That the standards of education for dental hygienists acceptable to the armed forces for oral hygiene work shall not be below those established in the several States for graduates in Dental Hygiene." It was further recommended that this motion be transmitted to the Surgeons General of the Army, the Navy, and the U.S. Public Health Service and to the Civil Service Commission. The committee will also transmit to the Surgeons General the opinion of the committee to the effect that it believes suitable training courses for dental hygienists should be instituted in order that sufficient numbers of these workers may be made available to the armed forces consistent with their needs.

We became alarmed last fall after all of our training schools had opened to find that the total enrollment of dental hygienists was only 240. A further check showed that in June 1942 only 361 dental hygienists had been graduated which was a sharp decline from previous years. In order that a concentrated effort might be made to combat this decline in student enrollment the Board of Trustees of the A.D.H.A. appointed a Publicity Committee for Student Enrollment. The purpose of this committee is to bring before the high school student who is now considering her future, the field of Dental Hygiene. To accomplish this the first thought of the committee was to use radio time. With this in mind a script was written and approved but after due investigation it seemed adviseable to change the plan and to reach the prospective students through guidance counsellors of the high schools, this to be accomplished by means of the publication of articles in national magazines covering this field. One article has already been written and will appear in an early issue of "Occupations".

I am sorry to have to let you see this dark side of your profession, but in order to correct an unfavorable situation one must first be aware that it exists, and to seek a cure by removing the cause. We must take stock of our assets and liabilities as we compare ourselves to other health workers with whom we must work and associate. Our liabilities are lack of uniformity of training requirements and State Board recognition. Our assets are—the service rendered is equally important as that rendered by other health workers, we are trained in the leading dental colleges in the country and are sponsored by organized dentistry. We must begin now to consider the post-war reconstruction of our profession and in so doing we must strive to build up those fields of practice which demand higher educational standards.

Broadcast

By MARGARET H. JEFFREYS

Announcer:

This morning we will interview ————————, a dental hygienist from the State Board of Health. As you folks know, it is the desire of your State Board of Health to help you keep healthy at all times. This morning we are going to hear about a disease of the mouth and throat that became widespread among the troops during World War I. This disease is called by several names but the most common ones are Vincent's infection or Trench mouth. Trench mouth—that name sounds as though the disease may have originated in the trenches. Could that be so?

Dental Hygienist:

The name—yes—but not the disease. It has been in existence for many years, and since World War I, it has slowly spread throughout this country.

Announcer:

Is there a possibility of the same thing happening in the present war situation?

Dental Hygienist:

Yes, indeed. As a matter of fact, it has already occurred. Trench mouth has been reported in more or less epidemic form in some of our army camps right here in the United States. Also, we have been advised by the United States Public Health Service that there have been outbreaks among industrial workers in England. It is not unlikely that the same thing may happen here.

Announcer:

Then it is not a disease that is common to the armed forces but to civilians as well. That should put us all on our guard to protect ourselves against any outbreak. But since many of us have heard so little about it, perhaps, it would be well for you to tell us about the disease and what precautions we may take to prevent it. For instance, what are some of the symptoms—how could we possibly know we had Trench mouth?

Dental Hygienist:

You will know beyond a doubt if you have it, unless it appears in its very mild form, for Vincent's infection or Trench Mouth produces a most uncomfortable condition. It starts in the form of ulcers and inflammation on the mucous membrane of the gums, cheeks, tongue or tonsils. Removal of the ulcers or membrane results in considerable bleeding. The teeth may become loose, are always sore, and it is impossible for the patient to eat. Also, there may be a rise in temperature, headache, general discomfort, vomiting, constipation, and a peculiar but always recognizable odor to the breath.

Announcer:

I, for one, would want to see my doctor or dentist at once if I had anything like that wrong with me.

Dental Hygienist:

And that is the very thing that you should do. Vincent's infection or Trench mouth responds quite readily to treatment and that treatment should not be delayed. At the first sign of *any* irritating condition in the mouth, soreness or bleeding, you should consult your dentist without delay.

Announcer:

Is Vincent's infection or Trench mouth anything like diphtheria—that is, can it be transmitted from one person to another?

Dental Hygienist:

Vincent's infection when it attacks the throat and tonsils is very much like diph-

theria. In fact, there have been cases when Vincent's Angina, as it is called when the tonsils are involved, has been diagnosed as diphtheria. As for transmitting it from one person to another, well, there are some authorities who believe it can be transmitted and others who do not think so. Until something definite is known, however, it would be wise for us to take certain precautions to prevent it from being spread.

Announcer:

And the suggestions are the usual simple ones that anyone could follow, I guess.

Dental Hygienist:

Yes, and such as should be observed under any circumstances and at all times. They are the use of individual and sanitary eating utensils, face towels, drinking cups, personal articles, etc. The bad habit of exchanging cigarettes and pipes, putting articles such as pencils that others may use in the mouth, should be carefully guarded against. Also, get plenty of fresh air and sunshine and eat well.

Announcer:

Your mentioning that we should "eat well" brings up a question I should like to ask. Is it possible that individuals who do not eat, let's say, fresh fruit and vegetables, might be more susceptible to Trench mouth than others?

Dental Hygienist:

There is enough reliable information available on that very subject to make us believe that this could be so. Therefore, we suggest more fresh fruits and particularly the citrus ones such as oranges, grapefruit, lemons and tomatoes. Also plenty of vegetables—especially the fresh and leafy green ones.

Announcer:

I was wondering about general mouth hygiene. Is that important in prevention of Vincent's Infection or Trench Mouth?

Dental Hygienist:

It is truly so. We will not go so far as to say that a person who has a clean mouth with no decayed teeth will not contract the disease. But, there is hardly any one who will deny the fact that individuals with clean, healthy mouths are less susceptible than those with unclean mouths. This is true of any mouth infection. Hence, good daily care and regular and periodic visits to the dentist are of the utmost importance.

Announcer:

There is just one more question that I should like to ask. Do patients who have Vincent's infection or Trench mouth ever become so ill that they cannot work?

Dental Hygienist:

Yes, indeed, and that is just another reason why we should use every precaution to keep it under control. In the army alone, according to one report, during the years 1917 through 1919 there were 6,189 men who were actually hospitalized. For this small number 92,690 days were lost from Vincent's infection of throat or mouth. You can visualize for yourself what that many days loss in manpower would mean in the present crisis.

Announcer:

I am very glad that I asked you that question Miss ————————. Certainly, we have no cause for concern at the present time and probably will not at any time in the future if we all will but follow the suggestions made during this broadcast.

I. At the first sign of any irritating condition in the mouth, soreness or bleeding, consult your dentist at once.

II. Avoid use of eating utensils, face towels, drinking cups and personal articles belonging to someone else; also avoid exchange of pipes or cigarettes, putting pencils or other articles into the mouth that may have been handled by someone else.

III. Include in your daily diet plenty of fresh and citrus fruits such as oranges, grapefruit, lemons and tomatoes. Also, plenty vegetables, particularly the fresh, green, leafy ones.

IV. Good mouth hygiene is important. Visit your dentist periodically and regularly for complete examination and have him do all the work that he feels should be done.

V. Finally, develop the habit of good daily home care. Adherence to these simple rules will not only help you guard against Trench mouth or Vincent's infection, but will help in prevention of many other infections.

Index of Oral Hygiene Literature

Prepared by Margaret Jeffreys, Dover, Delaware

CHILDREN'S DENTISTRY

Child Patient, McFall, Walter T., Pennsylvania State Dental Journal, Vol. 10, 1942, November, 12.

Dental Defects in Children, Martin, Ruth, D.D.S., Journal of the Missouri State Dental Association, Vol. 23, 1943, March, 43.

Dental Hygienist and the Child Patient, Wadley, Clemence, Journal of the American Dental Hygienists' Association, Vol. 16, 1942, October, 137.

Introducing Dentistry to the Child, Ireland, Ralph, L., D.D.S., Journal of the American Dental Association, Vol. 30, February, 280.

Management of the Child Patient, Gillespie, Guy M., D.D.S., Texas Dental Journal, Vol. 60, 1942, December, 472.

DENTAL CARIES

Correlation and Comparison of Laboratory Findings with the Clinical Evidence of Caries Activity in a Group of Sixty-Six Children,Snyder, Marshall, L., Ph.D., Journal of the American Dental Association, Vol. 29, November, 2001.

Dental Caries, Causes, Prevention and Correction, Bibby, Basil G., (From Bureau of Public Relations), Journal of the American Dental Association, Vol. 30, 1943, February, 303.

Dental Caries Control Program in Missouri, Robinson, Hamilton, B. G., D.D.S., M.S., and Gruebbel, Allen O., D.D.S., M.P.H., Journal of the Missouri State Dental Association, Vol. 23, 1943, February, 23.

Dental Caries—Etiology, Control and Activity Tests, Kesel, Robert G., D.D.S., M.S., Journal of the American Dental Association, 1943, January, 25.

Dental Caries and the Metabolism of Calcium, Robinson, Hamilton B. G., D.D.S., M.S., Journal of the American Dental Association, Vol. 30, 1943, March, 357.

Domestic Water and Dental Caries—V. Additional Studies of the Relation of Fluoride Waters to Dental Caries Experience in 4,425 White Children, Age 12 to 14 Years of 13 Cities in 4 States, Dean, H. Trendley, Dental Surgeon; Arnold, Francis A. Jr., B.S., D.D.S., Public Health Reports, Vol. 57, 1942, August 7, 1155.

Elements of Dental Medicine and Their Application to Treatment of Dental Caries, Torrens, R. G., B.A., B.D.Sc., T.C.D., South African Dental Journal, Vol. 17, 1943, January, 13.

Epidemiological Aspects of Tooth Decay, East, Bion, R., D.D.S., American Journal of Public Health, Vol. 32, 1942, November, 1242.

Fluorides in Preventive Dentistry, Arnold, Francis, A., Jr., B.S., D.D.S., Journal of the American Dental Association, Vol. 30, 1943, April, 499.

Fluorine, Shils, Maurice E. and McCollum, E. V., The Dental Outlook, Vol. 30, 1943, January, 15.

Is Fluorine a herapeutic Agent for Dental Caries? Hodge, Harold C., Ph.D., Journal of the American Dental Association, Vol. 29, 1942, November, 2073.

Influence of Immunologic Factors on Dental Caries, Hill, Thomas J., Journal of the American Dental Association, Vol. 28, 1941, January, 109.

Production of Carious Lesions in the Molar Teeth of Hamsters, Arnold, Francis A., Jr., Past Asst. Dental Surgeon, U.S. Public Health Service, Public Health Reports, Vol. 57, 1942, October, 1599.

Spreading of Caries Depending on Quality of Enamel, Stanton, Sonja, M.D., The Texas Dental Journal, Vol. 61, 1943, May, 173.

DENTAL HEALTH EDUCATION

Coordination—A Revitalized Effort in San Francisco, Greenhood, Charlotte S., D.D.S., Bulletin of the National Dental Hygiene Association, Vol. 1, 1942, August, 10.

Dental Health Education, Pelton, Walter J., D.D.S., M.S.P.H., Bulletin of the National Dental Hygiene Association, Vol. 1, 1942, August, 3.

Dental Health Education Week, Kramer, Leon, R., D.D.S., M.P.H., Bulletin of the National Dental Hygiene Association, Vol. 1, 1942, August, 14.

Dental Health Education Faces the Future, Lyght, Charles E., The Dental Outlook, Vol. 30, 1943, April, 163.

Dental Health Education of Children, Irwin, Vern, D., D.D.S., Journal of the American Dental Association, Vol. 28, 1941, January, 144.

Dental Health Education in the Girl Scout Program, Lewis, Bulletin of the National Dental Hygiene Association, Vol. 1, 1942, May, 5.

Dynamic School Program, Ellis, Shirley Easley, D.H., Bulletin of the National Dental Hygiene Association, Vol. 1, 1942, August, 12.

Education, a Viewpoint, Lamons, Frank F., D.D.S., Bulletin of the National Dental Hygiene Association, Vol. 1, 1942, May, 3.

Facts to Teach and Aids in Teaching Dental Health Education, Hopkins, Florence B., M.D., D.M.D., and Adams, Miriam, D.H., Journal of the American Dental Hygienists' Association, Vol. 17, 1943, January, 4.

Los Angeles Looks at Dental Health Education, Kulstad, Hugo M., Bulletin of the National Dental Hygiene Association, Vol. 1, 1942, May, 3.

Modern Public Opinion Poll—A Means of Defining and Appraising Community Health Education Problems, Guernsey, Paul D., American Journal of Public Health, Vol. 32, 1942, September, 972.

School Dental Program—Its Power and Limitations, Taylor, Bulletin of the National Dental Hygiene Association, Vol. 1, 1942, May, 11.

DENTAL HYGIENISTS

Dental Hygienist in Dental Practice (Editorial), Journal of the American Dental Association, Vol. 29, 1942, September, 1680.

Dental Hygienist in Military Service, Nones, Robert H., Jr., D.D.S., Dental Hygiene Quarterly (Pennsylvania), Vol. 18, 1942, April, 3.

Dental Hygienist in the Army, Miller, Margaret Clark, D.H., Journal of the American Dental Hygienists' Association, Vol. 17, 1943, January, 21.

"Dental Hygienists" in Illinois, Texas Dental Journal, Vol. 60, 1942, December, 463.

Dental Hygienist Issue Discussed at October Monthly Meeting, The Fortnightly Review, Vol. 4, 1942, November, 5.

Private Practice, Ferm, Elizabeth, D.H., Journal of the American Dental Hygienists' Association, Vol. 16, 1942, July, 95.

Relationship of Dental Hygienist to Dental Assistant, Fallerton, Barbara, Journal of the American Dental Hygienists' Association, Vol. 16, 1942, July, 98.

Shall the Dental Hygienist Be Licensed to Do Prophylaxis Under the Supervision of a Dentist?, Tench, Russell W., The Fortnightly Review, Vol. 4, 1942, December.

The Dental Hygienist? (Editorial), The Fortnightly Review, Vol. 4, 1942, October.

DENTAL PUBLIC HEALTH

Considerations in Planning a Community Dental Health Program, Reilly, Dental Health, Bulletin of the National Dental Hygiene Association, Vol. 1, 1942, May, p. 7.

Dental Health Program in the Pittsburgh Schools, Smith, L.M., M.D., Pennsylvania State Dental Journal, Vol. 10, 1942, October, 13.

Dental Hygiene in Industry, Spindler, Eleanor Ann, D.H., Journal of the Wisconsin State Dental Society, Vol. 19, 1943, January and February, 5.

Dental Program at Sonoma State Home with Special Reference to the Dental Hygienist, Moore, Anna Scheif, Journal of the American Dental Hygienists' Association, Vol. 16, 1942, October.

Dentistry in Public Health, Morse, Fred W. Jr., M.D., Journal of the American Dental Hygienists' Association, Vol. 16, 1942, October, 139.

Dentistry's Place in a Health Service Program, Holliday, Houghton, B.A., D.D.S., Journal of the American Dental Association, Vol. 29, 1942, September, 1608.

Distribution of Health Services in the Structure of the State Government, Chapter VI, Medical and Dental Care by State Agencies, Mountin, Joseph W., Assistant Surgeon General and Flook, Evelyn, U.S. Public Health Service, Public Health Reports, Vol. 57, 1942, August 14, 1195; also Public Health Reports, Vol. 57, 1942, August 21, 1235.

Expenditures by State Agencies for Medical and Dental Care, Journal of the American Dental Association, Vol. 29, 1942, October, 1887.

Evaluating Dental Health Programs, Knutson, John W., Past Asst. Dental Surgeon, U.S. Public Health Service, Public Health Reports, Vol. 57, 1942, August 28, 1287.

High School Victory Corps, Journal of the American Dental Association, Vol. 29, 1942, November, 2073.

How Important is the Dental Health Program? Nationally? Locally?, Hiscock, Ira V., Journal of the American Public Health Association, Vol. 32, 1942, February, 159.

Integrating Dental Health Into the Generalized Health Program, Gruebel, Dental Health Bulletin of the National Dental Hygiene Association, Vol. 1, 1942, August, 7.

Physician Looks at School Dental Programs, Wheatley, George M., M.P.H., M.D., F.A.P.H.A., American Journal of Public Health, Vol. 33, 1943, February, 120.

Public Health Dentistry, Pelton, Walter J., B.S., D.D.S., M.S.P.H., Journal of the American Dental Association, Vol. 30, 1943, April, 570.

Public Health Nurse and Home Nursing Instructor Promote Dental Health, Gring, Bulletin of the National Dental Hygiene Association, Vol. 1, 1942, August, 5.

Public Health Under Hitler's Rule, The Dental Outlook, Vol. 30, 1943, January, 34.

Public Health and Medical Relationships in Industrial Health, Johnson, Orlen J., M.D., American Journal of Public Health, Vol. 32, 1942, October, 1157.

Role of Dentistry for Children in a National Health Program, Oppice, Harold W., D.D.S., The Journal of the American Dental Association, Vol. 29, 1942, September, 1691.

Voluntary Agency in Community Dental Service, McCall, John Oppie, D.D.S., Journal of the National Dental Hygiene Association, Vol. 2, 1943, February, 13.

DISEASES OF THE INVESTING TISSUES OF THE MOUTH

Etiology and Treatment of Vincent's Infection, Schluger, Saul, Journal of the American Dental Association, Vol. 30, 1943, April, 524.

Pericornal and Vincent's Infection,—Bacteriology and Treatment, Jacobs, Max, H., M.D., D.M.D., Journal of the American Dental Association, Vol. 30, 1943, March, 392.

Treatment of Vincent's Ulceration of the Mouth and Vincent's Angina, Tomey, E. Vaughn, D.D.S., South African Dental Journal, Vol. 16, 1942, October.

NUTRITION AND DIETETICS

Dangerous Effects of Vitamin D Overdosage on Dental and Paradental Structures, Becks, Herman, D.D.S., Journal of the American Dental Association, Vol. 29, 1942, November, 1947.

Diet and Dental Health, Radusch, Dorothea F., D.D.S., Journal of the American Dental Association, Vol. 30, 1943, April, 588.

Eating for Sound Teeth, Miller, Fred D., D.D.S., Pennsylvania State Dental Journal, Vol. 10, 1943, March, 9.

Environment and Diet as They Effect the Periodontal Structure, Agnew, Gordon R., M.Sc., D.D.S., Ph.D., and Agnew, Mary Caldwell, M.A., Journal of the American Dental Association, Vol. 30, 1943, January, p. 69.

Nutrition and Teeth, Lautz, Amalia, Ph.D., Journal of the American Dental Health Association, Vol. 17, 1943, April, 47.

Place of Nutrition in Dental Hygiene, Coole, Walter A., M.D., South African Dental Journal, Vol. 17, 1943, January, 26.

Vitamin C Deficiency, a Cause of Periodontal Disease, Fitzsimmons, Leslie J., D.D.S., Journal of the American Dental Association, Vol. 28, 1941, January, 1.

Vitamin C Therapy in Periodontal Disease, Radusch, Dorothea F., D.D.S., B.A. M.S., Journal of the American Dental Association, Vol. 29, 1942, September, 1652.

PSYCHOLOGY AND PSYCHIATRY APPLIED TO DENTISTRY

Psychology Applied to Dental Treatment of Adolescents, McBride, Walter C., D.D.S., Journal of the American Dental Association, Vol. 8, 1941, January, 114.

Profitable Application of Psychiatry to Dentistry, Flicker, David J., M.D., Dental Outlook, Vol. 29, 1942, October, 447.

Psychological Treatment of Fear, Meaker, Stanleigh R., Journal of the American Dental Hygienists' Association, Vol. 16, 1942, October, 133.

LETTER FROM WASHINGTON

Dear Club Member:

Pooling resources is the order of the day. Team work among the United Nations is wearing the Axis down. A willingness to share among civilians is Backing the Attack. Common misfortune has always had a tendency to make kinfolk of strangers. When you're perspiring freely during a hot spell, you feel pleasantly friendly toward the other fellow who's mopping his forehead. A community fire or flood brings out a flock of generous impulses. You'll share a bed with the burned-out householder or furnish food for the flooded one.

If the excessively ill wind of war has blown any good at all, it's in making us feel responsibility for our fellow-citizens. It has removed the element of grab in the right-thinking of us. We're ready to go halves.

Share a Car

The car-pool is now an accepted phase of American life. There are penalties, to be sure, if you're lucky enough to be a member of a "Get to work on wheels squad." Waiting on the street corners for dilatory members is no fun for the prompt soul. And if you're one who doesn't blossom into full awareness of the world's beauty before 10 a.m., it's hard to put up with chatty fellow passengers. However, it's better than hanging to a strap and it does relieve public transportation.

Car sharing is not a perfected art, by any means. Not every auto is filled to capacity. There is still the one-man driver—a hissing and a byword if there ever was one. There is still the pedestrian who views with alarm the prospect of a ride without an introduction.

We have personally been on both ends of existing evils. We have walked in the rain—we have shivered or wilted on street corners—ignored by passing cars with room for us. But—we have also driven a car and made attempts to pick up other corner standees, only to be met with an icy stare. The aloof, silent treatment may be all right to mete out to a masher, but it's bad medicine for a Samaritan. Granted you may not be going our way. Or perhaps you prefer your newspaper on the bus to a lift and chit-chat about the weather. But smile, lady, and say "No, thank you" or you'll discourage us from trying for recruits at the next bus stop.

But then again—we know people who buy a War Stamp every time a hitch saves them bus fare.

YOUR WASHINGTON CORRESPONDENT

SO YOU'RE GOING TO WRITE AN ARTICLE!

V. The Mechanics of Writing

NOTE: This is the fifth of a series of six articles on various phases of writing. The general rules for the composition of an article are pointed out and emphasis is placed on the preparation of dental papers. The series is prepared by the Committee on Cooperation of the American Association of Dental Editors for release in member publications.

The writer's first purpose is to convey his idea correctly and clearly to the reader

and in this he can employ certain mechanical aids, the most important of which is punctuation. Since these rules are available in many works of reference, there is no necessity of repeating them here. The writer, however, should understand and make full use of this aid to the clear and accurate expression of thought. "The work of punctuation," says Fowler, "is mainly to show, or hint at, the grammatical relation between words, phrases, clauses, and sentences; but it must not be forgotten that (punctuation marks) also serve to regulate pace, to throw emphasis on particular words and give them significance, and to indicate tone."[1]

A lack of proper punctuation hides meaning and confuses the reader but not more so than an overworking of certain punctuation marks. The rules for the use of the various marks are not difficult and will prove invaluable to the writer in conveying the exact shades of meaning necessary to accurate expression of an idea.

CAPITALIZATION AND ITALICS

In the mistaken notion that it adds emphasis, many writers make improper use of capitals and italics. "Capitalization is to be avoided," states Kime, "except where necessary . . . Occasionally, a writer endeavors to reinforce his remarks by using italics or capital letters throughout a sentence or even a paragraph, perhaps feeling an inability to phrase his sentence forcefully. Shouting at the reader through the medium of type destroys the value of the emphasis on the occasional word that is sometimes necessary to the sense."[2]

A similar generalization can be made about the use of abbreviations. As a general rule, only the more common abbreviations (such as Mr. and Ave.) should be used in an article. Abbreviations not in common use should be used only where necessary and their meaning should be made clear to the reader.

QUOTATIONS AND REFERENCES

If a writer borrows a passage, a sentence or even an idea, this indebtedness should be acknowledged. This is the basis of literary honesty and is especially important in articles of a scientific nature. Acknowledgment may be made by enclosing the borrowed material in quotation marks, by including the source in a list of references or bibliography, or by means of a footnote. When a periodical is cited, the reference should give the following information in the order stated: (1) name of the author; (2) title of the article; (3) abbreviation of the title of the periodical; (4) the volume; (5) the paging; (6) the month; (7) the year. When a book is cited the following information should be given: (1) name of the author; (2) the title of the book; (3) the edition, if more than one; (4) the place of publication; (5) the publisher; (6) the date; (7) the paging.

REFERENCE BOOKS

Every writer, no matter how learned, has need for reference books. Of these, a good general dictionary and a good medical dictionary are indispensable. Fowler's "Modern English Usage"[3] is classic in its field and will repay a thorough reading for both the conversationalist and writer. The "ABC of English Usage"[4] is an American adaptation of Fowler's useful work. The same authors have written a sound guide to grammar and rhetoric in "The King's English".[5] The Handbook of Effective Writing"[6] by Smart and "The Century Collegiate Handbook"[7] have been used extensively in the preparation of this series and will be found to contain a wealth of information in simple and concise form. "Medical Writing"[8] by Fishbein is a rather complete guide for technical writing, particularly in the field of medicine. "A Manual of Style"[9] contains all needed information on the preparation of manuscripts and their reduction to print. Bartlett's "Familiar Quotations"[10] is a reliable literary work horse but should not be ridden too hard or too often. "Manuscript and Proof"[11] by Benbow, will be a consistent aid to those who are painstaking in the preparation of their material for the printer. A remarkably cheap and serviceable "style book" for writers, editors and printers is that issued by the Government Printing Office.[12]

The use of these books will not replace the careful planning and writing of a paper.

They are not a substitute for sound thinking or for the accurate expression of that thought in properly chosen words and sentences. Correctly used they will assist the writer in his task of conveying ideas quickly, accurately and completely to the reader.

FOOTNOTES

1. Fowler, H. W. and F. G. The King's English, hird Edition. New York: Oxford University Press. 1930. P. 233-4.
2. Kimo, B. L. How to Edit. Trans. Am. A.D. Editors, 3:13 (July 15) 1939.
3. Fowler, H. W. Modern English Usage. London: Oxford University Press. 1929. Price $3.25.
4. Treble, H. A. and Vallins, G. H. An A.B.C. of English Usage, American Edition, New York: Oxford University Press. 1937. Price $1.50.
5. Fowler, H. W. and F. G. The King's English. Third Edition. New York: Oxford University Press. 1930. Price $2.25.
6. Smart, W. K. Handbook of Effective Writing. Revised Edition. New York: Harper and Brothers. 1931. Price $1.50.
7. Greever, G. & Jones, E. S. The Century Collegiate Handbook. Revised Edition. New York: Appleton-Century. 1939. Price $1.25.
8. Fishbein, M. Medical Writing: The Technic and Art. Chicago: American Medical Association. 1938. Price $1.50.
9. A Manual of Style. Chicago: University of Chicago Press. 1937. Price $3.00.
10. Bartlett, John. Familiar Quotations. Eleventh Edition. Boston: Little, Brown & Company. 1938. Price $5.00.
11. Benbow, John. Manuscript and Proof. New York: Oxford University Press. 1937. Price $1.50.
12. Style Manual. Revised Edition. Washington: United States Government Printing Office. 1939. Price $1.50.

REPORT OF MISSISSIPPI DENTAL HYGIENISTS' MEETING

The fifteenth annual meeting of the Mississippi Dental Hygienists' Association was held at the Robert E. Lee Hotel, Jackson, Mississippi, May 17-18, 1943, in connection with the annual meetings of the Mississippi Dental and Mississippi Dental Assistants Associations.

The Victory Corps Breakfast with Miss Gladys Eyrich, Supervisor Mouth Health, State Board of Health, presiding, was well attended by dentists throughout the state who are especially interested in the mouth health program of the State Board of Health. Guests at the breakfast included a group of education leaders in the public schools of Jackson. Speakers for the occasion were Mr. E. R. Jobe, State Director of Victory Corps and Dr. T. L. Hagan, District Director, U.S. P.H.S., New Orleans. The importance of the co-operation of dentists and educators in helping each high school pupil leave school dentally fit to meet military conditions was emphasized by both speakers.

Dr. Frances Brennecke, Director of Maternal and Child Health, State Board of Health, gave a most informational discussion of the "Emergency Maternity and Infant Care Plan."

Miss Gladys Eyrich, Supervisor of Mouth Health, led a discussion: "An Evaluation of Our Teaching and Our Results", in which each dental hygienist participated by explaining in detail one or more successful achievements in her work. Dr. T. L. Hagan, U.S. P.H.S., concluded the discussion by summarizing the highlights.

Dr. Felix J. Underwood, Executive Officer, State Board of Health, spoke on the

subject: "The Dentist's Part in Civilian Defense" at a luncheon attended by the members of the Dental, Dental Assistants, and Dental Hygienists Associations.

The meeting closed with a business session at which time the President-elect, Mrs. John Pitchford, Coahoma County Health Department, Clarksdale, Mississippi, was elevated to the presidency. Miss Marie Rutledge, County Health Department, Greenwood, Mississippi, was elected President-elect, and Miss Aileen Cooper, Warren County Health Department, Vicksburg, Mississippi, was re-elected secretary-treasurer.

SARAH HILL, *Reporter*

NOTE

This issue, you will note, is smaller type than some in the past. We are trying to give you as much material as possible and still save a greater percent of stock. The War Production Board is ordering a further cut in the use of paper the last three months of this year.

The Practical examination of the Ohio State Dental Board for Dental Hygienists will be held on Tuesday, October 19, 1943, at Western Reserve University, Cleveland, Ohio, and on Tuesday, November 30, 1943 at Ohio State University, Columbus, Ohio, beginning at 8:30 a.m. The Practical examination may be taken either in Cleveland or Columbus provided due notice is given to the Secretary. The Theory examination will be held at Ohio State University, Columbus, Ohio, Thursday, Friday, and Saturday, December 2, 3, and 4, 1943, beginning at 8:30 a.m., and ending Saturday noon. All applications must be in the hands of the Secretary at least ten days before date of examination. For further information apply to:

EARL D. LOWRY, D.D.S., *Secretary*
79 E. State Street
Columbus, Ohio

THE CONNECTICUT DENTAL COMMISSION

The Connecticut Dental Commission will meet in Hartford, Connecticut, December 7, 8, 9, 10, and 11, 1943, for the examination of applicants for license to practice dentistry and dental hygiene and to transact any other business proper to come before it.

Applications should be in the hands of the Recorder at least ten days before the meeting. For application blanks and further information, apply to Clarence G. Brooks, D.D.S., Recorder, New London, Connecticut.

Forsyth
Dental Infirmary
for Children

The Fenway, Boston, Mass.

FORSYTH
TRAINING SCHOOL FOR
DENTAL HYGIENISTS

Training for Public Health Work, School Clinics and Private Practice.

Eleven Months' Course—September to July, inclusive.

Director:

PERCY R. HOWE, A.B., D.D.S.

TWO OUTSTANDING COURSES

in the

DENTAL FIELD

In addition to the course preparing the student for the practice of modern dentistry, and leading to the degree of D.D.S., the University also offers two courses in ORAL HYGIENE.

One course, covering a year's work, provides training in this new professional field for young women who have finished high school, and leads to a Certificate in Oral Hygiene.

A four-year course in Oral Hygiene, also offered by the University, leads to a Bachelor of Science Degree in Education, with a Certificate in Oral Hygiene. Credit for advanced standing in Dental Hygiene, based upon completion of the University's requirements, will be allowed graduates of recognized Dental Hygiene training schools.

ORAL HYGIENE DEPARTMENT

Temple University Dental School
Philadelphia Dental School

Gerald D. Timmons, Ph.G., D.D.S., F.A.C.D.

NOTICE

Requests are made for back issues of Journal.

JANUARY, 1938—1939—1940

APRIL, 1938—1939—1940

JULY, 1938

Please forward to

HELEN B. SMITH
P.O. Box 462
Milford, Conn.

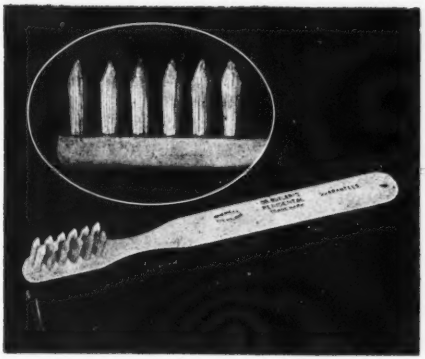
Long hours and exacting work confronting most of us these days, suggest careful thought about the conservation of time and energy that may help to give some relief to tired feet, eyes, and nerves. Our duty as a manufacturer is to think in just those terms for you.

All Weber Equipment and appliances are thought through and designed to help those engaged in dental practice. The Weber Rest and Relief Stool is an example. The Duplex Light, Motor Chair, and unit appliances are all fitting examples of these endeavors.

When you and your dentist need thoughtful help turn to Weber, makers of fine dental equipment for 49 years.

THE
WEBER DENTAL MFG. COMPANY
T. M. McDonald
Vice-President and General Manager

Crystal Park - Canton, Ohio



October 1, 1943

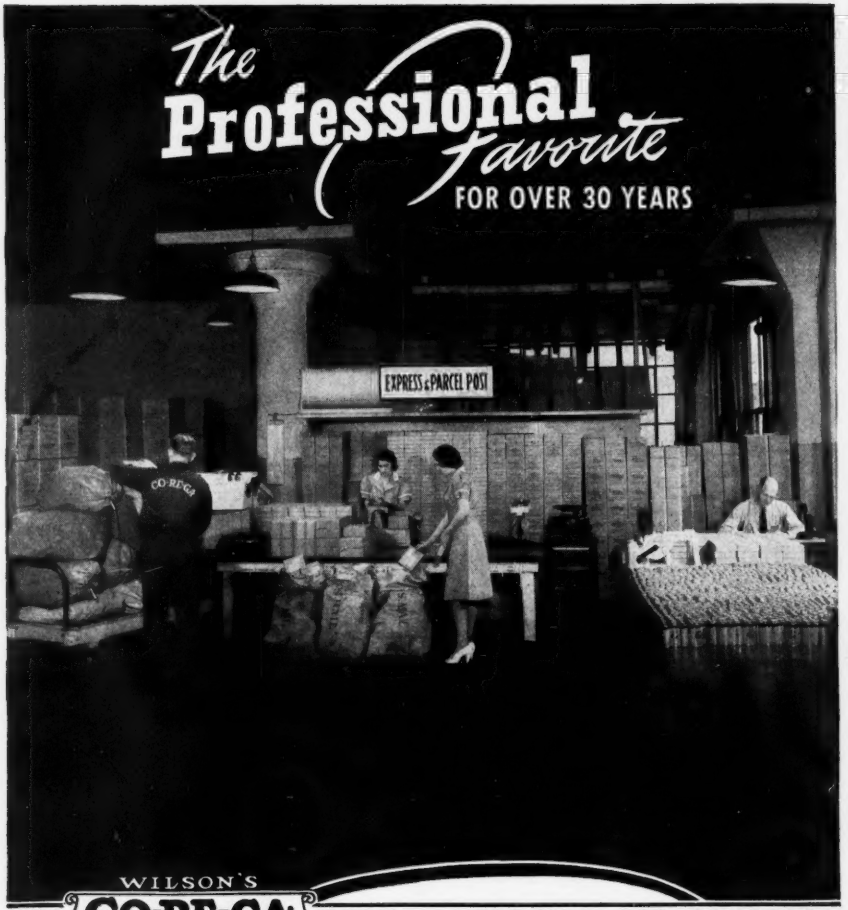
is moving day for the John O. Butler Company; we are very proud of the fact that the demand for the Butler brush has forced us to again move to more spacious quarters at the address below:

7600 Cottage Grove Avenue
Chicago 19, Illinois

At the location we will be able to give even a better service than we have in the past, and without doubt produce even a finer instrument for the use of your patients in the home care of their mouths.

We are indeed grateful to the members of the American Dental Hygienists' Association for the splendid co-operation they have given us since the Butler brush was introduced in 1923.

John O. Butler Company



WILSON'S
THE CO-RE-GA (POWDERED) PERFECT ADHESIVE FOR DENTURES

MAILING DEPARTMENT
CLEVELAND PLANT

Where thousands of Dentists' samples are shipped daily. An average morning supply of CO-RE-GA professional samples starting on their way to the dental offices of the U. S. A. Produced from the finest selected materials—edibly pure.

DOCTOR!

THIS COUPON
IS FOR YOUR
EXCLUSIVE USE

PLEASE SEND FREE SAMPLES FOR PATIENTS

Dr. _____

_____

_____

COREGA CHEMICAL COMPANY
208 ST. CLAIR AVE., N. W. • CLEVELAND, OHIO

CO-RE-GA is not advertised to the public